

ABSTRACT OF THE DISCLOSURE

A magnetic actuator includes a first yoke, an armature which is provided inside the first yoke and made movable in reciprocating motion along a first direction inside the first yoke, first and second coils fitted inside the first yoke, a pair of second yokes affixed to the first yoke along a second direction, and permanent magnets affixed to the second yokes in a manner that the permanent magnets are positioned face to face with the armature. In the magnetic actuator thus constructed, fluxes generated by the first and second coils pass through first magnetic circuits whereas fluxes generated by the permanent magnets pass through second magnetic circuits differing from the first magnetic circuits.